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Agricultural Memorandum No. 427

Release of Barley Mildew Spores - Effect of Winter Barley

L P Smith

Spore catches were taken at Wellesbourne in 1971 in plots of spring barley which had an adjacent field of winter barley. Hourly wind records are not available, but taking the 6-hourly reports (00, 06, 12 and 18 hrs GMT) at Elmdon as a general indication, the 6-hourly counts 09-15, 15-21, 21-03 and 03-09 were analysed with respect to these directions and the figures meaned over 50 degree overlapping bands, with the following results:-

May

50 degree band Centred on:-	Mean (6-hr) catch	50 degree band Centred on:-	Mean (6-hr) catch
010	216	190	94
020	349	200	80
030	359	210	30
040	409	220	36
050	410	230	48
060	440	240	58
070	390	250	103
080	359	260	169
090	108	270	254
100	123	280	293
110	58	290	293
120	48	300	221
130	83	310	458
140	84	320	318
150	84	330	290
160	119	340	263
170	110	350	300
180	99	360	188

Calm 259

The peak around NW was mainly due to a single count of 1366 with a reported Elmdon wind of 330°. Otherwise there is a clear maximum in the NE. Mean counts 020-080 (26 occasions) = 402 which increases to 456 if three zero counts on May 1 and 2 are omitted.
Mean Count 090-010 (96 occasions) = 154
This suggests that over May as a whole some two thirds of the spores caught came from the winter barley which was in the adjacent field.

June

50 degree band Centred on:-	Mean (6 hr) catch	50 degree band Centred on:-	Mean (6 hr) catch
010	226	190	269
020	640	200	364
030	585	10	346
040	595	220	349
050	556	230	354
060	580	240	334
070	340	250	260
080	163	260	291
090	119	270	283
100	27	280	272
110	34	290	262
120	61	300	235
130	80	310	237
140	230	320	222
150	230	330	177
160	244	340	209
170	249	350	220
180	253	360	192

Calm 149

The peak direction here is 020°-070°, agreeing well with the findings for May.
Mean count 020-080 (33 occasions) = 519
090-010 (87 occasions) = 254
The proportion of "incurring" spores caught seems now to have dropped from two thirds to one half.

Any comments or suggestions should be referred to the author:

Meteorological Office
Bracknell

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